REMARKS

The application is believed to be in condition for allowance for the reasons set forth below.

Claims 1-13, 15 and 16 are pending in the application.

Claims 1-5, 7-12, 15 and 16 were rejected under 35 USC 103(a) as being unpatentable over WO 02/079644 in view of WO 03/002891. That rejection is respectfully traversed.

WO '644 discloses the use of a bogie plate with spherical roller bearings (SRBs). Such bogie plate is designed to allow self-adjustment of the planets so as to achieve the optimum load distribution in the planetary cell.

A typical bogie planetary cell consists of a planet carrier, a ring gear, a sun pinion and three planet shafts, each carrying a pair of planets and their associated bearings. A driving disc (part of the planet carrier) supports the planet shafts centrally so that each planet pair has a planet located on either side of the disc. The planet shaft/driving disc interface is designed to act as a hinge point in the tangential and radial directions.

When using spherical roller bearings in combination with a bogie plate, as in WO '644, each planet has 3 rotational degrees of freedom (DOF), independent of those of the other planets, and the planet shafts have 2 rotational degrees of freedom.

With the various degrees of freedom and with the influences of friction neglected, each planet is in a position that guarantees an optimum load distribution between the planets.

The present invention now describes the use of a bogie plate in combination with tapered roller bearings (TRBs) and claim 1 recites a planet bogie plate which supports and locates circumferentially spaced planet gear bearings on which planet gears are mounted, and at least some of said bearings being taper roller bearings.

The Official Action recognizes that WO '644 does not disclose taper roller bearing. WO '891 is offered for this feature, with the Official Action concluding that the only difference between the present invention and WO '644 is that the present invention uses TRBs instead of the SRBs which are used in WO '891.

However, the proposed combination of references is improper because the proposed combination is contrary to the accepted teachings at the time the present invention was made.

Although the use of taper roller bearings (TRBs) for supporting planets is known from the prior art, nevertheless, such TRBS were never contemplated in a design with a bogie.

In order to have proper load distribution in a design with a bogie it was always believed that a sufficiently high degree of freedom is needed.

This degree of freedom was obtained by combining the bogie plate with spherical roller bearings (SRBs) for optimum load distribution.

One of ordinary skill in the art did not consider TRBs in combination with a bogie plate because one loses degrees of freedom because the TRBs are fixed to the planet gear and cannot freely move.

Indeed, the combination bogie plate/TRBs has a lower number of degrees of freedom (DOF). In particular, the planets only have 1 rotational degree of freedom and the planet shafts have 2 rotational degrees of freedom.

Applicants attach hereto a drawing, which illustrates a planet-set model and the coordinate system used in the case of the bogie plate/TRB combination.

In the attached drawing, bearings are not shown but allow individual rotation of the planets around the Y axis. The planet shaft has rotational degrees of freedom around A and B.

The A and B rotational degrees of freedom of the planet shaft allow a degree of adjustability that is beneficial in reducing $KR_{beta\ values}$ (which is a factor regarding uniform load distribution used in wind turbine calculation).

It was surprisingly found that not having the added degrees of freedom of the planets on SRBs (see above) could at least partly be compensated by using the self-adjusting characteristics of the TRBs.

Hence, the present inventors surprisingly found that, although giving rise to less degrees of freedom, the combination of a bogie plate with TRBs still allows a good load distribution. In other words, the 1 rotational DOF left in combination with self-adjusting characteristics of the TRBs is enough for a good load distribution.

Furthermore, this concept takes advantage of the advantages of TRBs over SRBs and still exploits the full advantages of the bogie plate.

In view of this, it appears that the previously presented argument (September 2, 2008) with respect to load distribution was misunderstood.

Indeed, page 2 of the Office Action, mentions that the argument against WO '644 that a taper roller bearing cannot be used in such a gearbox, since there would be no good load distribution due to a lack of degree of freedom.

However, the argument is not that the taper roller bearing cannot be used in such a gearbox, but rather, would not have been considered for use in such a gear box.

That is, at the time of filing, it was commonly believed that a sufficiently high degree of freedom was necessary in order to have a proper functioning of the gear unit and for that reason spherical roller bearings were always used.

The present invention surprisingly found that a gear box such as that of WO '644 could be equipped with TRBs without

having load distribution problems. However, the use of TRBS in such a gear box was never contemplated as discussed above.

Although, TRBs have a lot of advantages, certainly in integrated designs in which high loads have to be accommodated, nevertheless, a design having a bogie plate combined with TRBs was never proposed before and it was believed not to be workable at the time of filing based on a lack of degree of freedom.

In view of this, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested.

Accordingly, the present claims are believed to be patentable over WO '644 in view of WO '891.

Claims 1-13, 15 and 16 were rejected under 35 USC 103(a) as being unpatentable over WO 02/14690 in view of WO 03/002891. That rejection is respectfully traversed.

The Official Action recognizes that WO '690 does not disclose taper roller bearing. WO '891 is offered for this feature, with the Official Action concluding that the only difference between the present invention and WO '690 is that the present invention uses TRBs instead of the SRBs which are used in WO '891.

However, for the reasons set forth above, the proposed combination of references is improper because the proposed combination is contrary to the accepted teachings at the time the present invention was made.

In view of this, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested.

Accordingly, the present claims are believed to be patentable over WO '690 in view of WO '891.

Claims 1-13, 15 and 16 were rejected under 35 USC 103(a) as being unpatentable over WO 03/014566 in view of WO 03/002891. That rejection is respectfully traversed.

The Official Action recognizes that WO '566 does not disclose taper roller bearing. WO '891 is offered for this feature, with the Official Action concluding that the only difference between the present invention and WO '566 is that the present invention uses TRBs instead of the SRBs which are used in WO '891.

However, for the reasons set forth above, the proposed combination of references is improper because the proposed combination is contrary to the accepted teachings at the time the present invention was made.

In view of this, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested.

Accordingly, the present claims are believed to be patentable over WO '566 in view of WO '891.

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over WO 02/079644 in view of WO '891 and further in view of WO '690 and WO '566. That rejection is respectfully traversed.

Claim 6 depends from claim 1 and further defines the invention and is believed to define over the proposed combination of references at least for depending from an allowable independent claim.

Claim 13 was rejected under 35 USC 103(a) as being unpatentable over WO '644 in view in view of WO '891 and further in view of WO '690 and WO '566. That rejection is respectfully traversed.

Claim 13 depends from claim 1 and is believed patentable over the proposed combination of references at least for depending from an allowable independent claim.

In view of the foregoing Remarks, the present application is believed to be in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

- Drawing for explanatory purposes only to aid in examination.